## **GUJARAT TECHNOLOGICAL UNIVERSITY** BE - SEMESTER-VIII • EXAMINATION – SUMMER 2013

Subject Code: 180104Date: 09-05-2013Subject Name: Aircraft Control and NavigationTotal Marks: 70Time: 10.30 am - 01.00 pmTotal Marks: 70Instructions:Total Marks: 70		Code: 180104Date: 09-05-2013Name: Aircraft Control and Navigation	
	1. 2. 3.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	Explain Flight Path Stabilization in detail.	07
	(b)	What do you understand by Transient Response of an aircraft? Explain with suitable examples.	07
Q.2	(a)	With the help of a diagram explain Displacement type Longitudinal Autopilot. Also mention its Advantages and Disadvantages.	07
	(b)	Explain the role of Inner Loop Control in Automatic Flight Control System.	07
	<b>(b)</b>	What does a Outer Loop Control play in Automatic Flight Control System? Explain giving examples.	07
Q.3	(a)	List all the assumptions made while deriving equations of motion of aircraft. Justify your action.	07
	(b)	Explain in brief the term Course Computation in Aircraft Navigation.	07
		OR	
Q.3	<b>(a)</b>	What do you understand by Cross Coupling? Explain in detail.	07
	<b>(b)</b>	Explain the principle of Dead Reckoning principle of Navigation.	07
Q.4	(a) (b)	Define Navigation. Explain briefly various types of Navigational principles. Explain Yaw Orientation Control system with the help of a suitable diagram. OR	07 07
Q.4	(a)	Explain in detail the term Down Wash with suitable diagrams.	07
	<b>(b)</b>	Derive an equation for linear motion of an aircraft.	07
Q.5	<b>(a)</b>	Explain the effects of high role rates on stability of aircraft.	07
	(b)	How do you arrive at aircraft attitude with respect to earth?	07
		Derive values of its fundamental elements.	
		OR	
Q.5	(a)	Explain Euler Angle system and establish relations between inertial and body reference.	07
	(b)	With the help of a system wise block diagram explain the fundamental aspects of a modern Aircraft Navigation System	07

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